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ABSTRACT

A study investigated the direction United States lumber industries are moving concerning the implementation of the metric system and what implications this has concerning wood consuming industrial education courses. The procedure included a literature review and investigating the major producers of softwood dimensional lumber by a detailed survey letter requesting both a past and future analysis of individual company's positions concerning the conversion to the metric system of measurement. The results showed that the United States lumber industries generally favor a soft conversion of the present inch lumber sizes to metric dimensions. The reasoning behind this trend of thinking to soft conversion is based on the following facts: Product waste considerations, strength of materials, consumer demand, and preservation of the current lumber dimensions standard adopted in 1970. Implications for industrial education teachers are discussed, and conversion tables for thickness, length, and width of softwood lumber are included. (Author/LAS)

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METRICATION OF THE UNITED STATES LUMBER INDUSTRY AND ITS EFFECTS ON WOOD CONSUMING INDUSTRIAL EDUCATION COURSES

by

Peter J. Craemer

A Research Paper

Submitted to Complete the

Plan B Requirements in

190-735
Problems in Industrial Education

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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CHAPTER I

INTRODUCTION

Across the United States many industries are rapidly changing over to the metric system of measurement. Likewise, many Industrial Education courses are changing over to the new system of measurement. What direction industry takes in regards to metrication bears a direct impact on what will be done to facilitate a change to the metric system in regards to our current educational programs. Since Industrial Education derives its content from industry the value of keeping pace with the current trends and directions as directed by industry cannot be underemphasized.

Statement of the Problem

This study will investigate the direction United States Lumber Industries are moving concerning the implementation of the metric system and what implications this has concerning wood consuming Industrial Education courses.

The specific purpose of this study will be to investigate the products of selected major producers of softwood dimensional lumber. The selection of these major producers will be based on Standard and Poors publication entitled Industry Surveys.

This study of the lumber industries will be carried out by means of a detailed letter requesting both a past and future analysis of each individual company's position on the change over to the metric system of measurement. These positions, and also that of the American National Metric Council, will then be evaluated and compared in order to determine the most prevailing viewpoint concerning metrication and its effects on the United States Lumber Industries.

The second part of this study will then take the prevailing analysis of industry and show how it will affect such selected Industrial Education courses as building construction, woodworking, and woodcrafts. This analysis will specifically relate to the procurement of lumber for these types of courses.

Definition of Terms

In this study in order to provide ease of understanding the following terms are defined as follows:

English System - a measurement system based on customary units of weights and measures including inches, feet, yard, pint, and gallon.

Metric System - a general term relating specifically to the le Systeme International d'Unites (the International System of Units), usually abbreviated as SI.

SI System - a system of measurement based on decimals where large or small values can be expressed by multiplying or dividing by powers of ten. This system of measurement has

seven base units which include units for length (metre), mass (kilogram), time (second), electric current (Ampere), temperature (Kelvin), amount of substance (mole), and luminous density (candela).[1]

Hard Conversion - is a change of measurement language to SI units which necessitates physical changes outside those permitted by former measurement tolerances.[2]

Soft Conversion - is a change of measurement language to SI units which may include physical changes not exceeding those permitted by former measurement tolerances.[3]

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[1] American National Metric Council, Management of Metric Implementation, p. 3.

[2] Ibid, p. 3

[3] Ibid, p. 3.

CHAPTER II

REVIEW OF LITERATURE

> Weights and measures may be ranked among the necessaries of life to every individual of human society. They enter into the economical arrangements and daily concerns of every family. They are necessary to every occupation of human industry; to the distribution and security of every species of property; to every transaction of trade and commerce; to the labors of the husbandman; to the ingenuity of the artificer; to the studies of the philosopher; to the researches of the antiquarian, to the navigation of the mariner and the marches of the soldier; to all the exchanges of peace, and all the operations of war. The knowledge of them, as in established use, is among the first elements of education, and is often learned by those who learn nothing else, not even to read or write. This knowledge is riveted in the memory by the habitual application of it to the employments of men throughout life.
>
> John Quincy Adams
> Report to the Congress, 1821

Historical Perspective of Measurement

From the above passage by John Quincy Adams, one cannot underemphasize the importance of weights and measures and its effects on the individual and all of society. Even primitive societies needed rudimentary measures for many daily living tasks such as: constructing dwellings of an appropriate size and shape, fashioning clothing, or bartering food or raw materials.

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[1]United States Department of Commerce, Measurement Systems, p. 1.

English System

In the United States today our system of measurement is based on that which the colonist brought over from England. This system is commonly referred to as the English system. This English system of measurement has its origins from a variety of cultures -- Babylonian, Egyptian, Roman, Anglo Saxon, and Norman French.[2]

Standardization of the various units in the English system came about in many curious ways. For example, the yard was decreed by King Henry in the twelfth century to be the length from the point on his nose to the end of his thumb. In 1324 King Edward II decreed "three barly corns round and dry, placed end to end, equal one inch."[3] Even later on in time in the sixteenth century standardization of measurement in England continued on a curious and fascinating course. The English rod at this time was defined as the combined lengths of the left feet of the first sixteen men to leave church on a certain Sunday.[4]

Many attempts were made to define the total English system even as early as 1266. In this year the then used

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[2]United States Department of Commerce, Measurement Systems, p. 1.

[3]Busch, Ted, Fundamentals of Dimensional Metrology, p.24.

[4]Ibid., p. 22.

English Tower system of weight and capacity was defined as follows: "an English penny called a sterling, round and without any clipping, shall weigh thirty-two wheat-corns in the midst of the ear; and twenty pence do make an ounce, and twelve ounces a pound; and eight pounds do make a gallon of wine, and eight gallons of wine to make a bushel, which is the eighth part of a quarter."[5] With definitions such as these for the inch, rod, and the Tower system its a wonder at all that trade, commerce and daily living indeed survived through the ages.

Over the years many numbers of units came into existence and everyday use in the English system. While today barley corns laid end to end and churchmen's left feet seem picturesque as a basis for measurement, they might have been a great source of confusion and frauds when they were used. For measuring weight there were for example, among others, the clove, the stone, the hundredweight, and the sack. For measurements of capacity Englishmen could choose from the bottle, the gallon, the bushel, the firkin, the stake, or the carload.[6] From these previous passages one can see that this English system of measurement lacked standardization

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[5]Hallock, William and Wade, Herbert T., Outlines of the Evolution of Weights and Measures and the M ric System, p. 6.

[6]Hopkins, Robert, The International (SI) Metric System, p. 9.

among its units and also an accurate and precise standard.

Introduction of Metric Measurement: France

In 1790, during the French Revolution, the National Assembly of France requested the French Academy of Sciences to "deduce an invariable standard for all the measures and all the weights."[7] On March 19, 1791, after considering several alternative possibilities, a committee of the French Academy of Science adopted a unit equal to one ten-millionth of the length of the length of a quadrant of the earth's meridian.[8] More specifically this measurement was defined by astronomical observation as one ten-millionths part of the distance from the north pole to the equator along a line running through Paris.[9] Later in time this unit was given the name metre - a derivative of the Greek word metron, basically meaning "a measure". France did not begin to seriously adopt this new metric system which began with the metre, until 1795, because of the political and social upheavels of the French Revolution.

By adopting this standard of measurement for the metre the French system began on the path to a precise and accurate total system of measurement. This new French system

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[7]United States Department of Commerce, p. 4.

[8]Hallock and Wade, p. 47.

[9]Busch, p. 24.

was not based on barley corns or kings' noses and thumbs but on a precise relatively unchanging standard. In 1875 an international treaty, the Treaty of the Meter, set up well defined metric standards for length and mass for use in any country of the world. This treaty, also known as the Metric Convention, was signed by seventeen countries, including the United States.[10]

Another important date concerning measurement was 1960. In that year the General Metric Council adopted an extensive revision and simplification of the system. The name International System of Units (le Système International d'Unites) was adopted for this modernized metric system. This system is commonly known by the international abbreviation SI, which was adopted for this modernized metric system.

Metric Measurement in the United States

In the United States the metric system was made legal by an act of Congress in 1866 but was not made obligatory. At the present time ninety percent of the world's population now uses the metric system in everyday life, in manufacturing as well as in commerce and trade.[11] The United States is the only major industrialized country that has not made any permanent commitment to the metric system. Since

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[10] United States Department of Commerce, p. 4.

[11] Schimizzi, Ned V., Mastering the Metric System, p. 21.

1970, many laws concerning the adoption of the metric system by the United States have been voted down in Congress. Mangan pointed out that the Ninety-Third Congress (1973-74) was the second in succession which failed to pass definitive legislation.[12] On May 7, 1974, the United States House of Representatives voted, 240-153 against adopting the Metric Conversion Act of 1973.

Although the Federal and State governments have not officially adopted the metric system of measurement, many United States industries both large and small have begun to convert to metrics. It is the purpose of this study to investitate what segment of United States industry, namely the lumber and wood products sector, has been doing in facilitating a change to the metric system.

Many industries and likewise individual companies have done much in recent years to provide a smooth changeover from the English to the metric system. A relatively small tool and gage company called Regal-Beloit Corporation of South Beloit, Illinois, for example, has developed vast amounts of materials concerning their changeover to the metric system.[13] Other companies such as Ford Motor, General Motors, J.C. Penney Company, Sears, Roebuck and Company have formed

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[12] Mangan, Paul D., Management of Metric Implementation, p5.

[13] Peterson, Roger, Metric News, p. 3.

such things as metric committees in their own organizations, consumer education programs, and even educational packages for teachers.[14]

In Great Britain the plan for metrication has been going on for five years with the construction industry leading the way.[15] In the United States, however, the construction industry has been slower than other industries in converting to the metric system. Turner, in his study offered the conclusion that "a change to the metric system - the International System of Units - in the building construction industry would require a federal agency to administer a nationally coordinated program.[16]

Schinizzi in his book entitled Mastering the Metric System also concedes that the construction industry will be one of the most difficult industries to convert to the metric system. He discusses the fact that new metric dimensions will have to be recognized for all building components including length, mass, and volume as well as all the subunits.[17]

In a study by Stein, a random sampling of construction executives revealed a surprising lack of awareness concerning the proposed ten year metric conversion recommendations by the

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[14]Peterson, Robert, Metric News, p. 3.

[15]Ibid., p. 21.

[16]Turner, American National Metric Council, p. 6-8.

[17]Schinizzi, p. 87.

National Bureau of Standards in 1971.[18] Not all industries it must be remembered however, have been unaware of the changeover to the metric system as was discussed earlier by the examples of Regal-Beloit, Ford, General Motors, J.C. Penney, and Sears, Roebuck and Company.

Because of the great influence of weights and measures on individuals and Society as expressed well by John Quincy Adams in the beginning of this literature review, any research study that deals with the measurement system is of great importance to both the individual and society. It is the purpose of this study to find out what a certain sector of United States industry is doing concerning the changeover to the metric system of measurement. The sector to be studied specifically is the softwood dimension lumber industry in the United States. This study will gather information concerning if a certain company has a stated position, concerning a changeover to the metric system and also how they intend to actually convert. This study will also take the prevailing analysis as provided by the lumber industries themselves, and show how it will affect such selected Industrial Education courses as building construction, woodworking, and woodcrafts. This analysis in the end will specifically relate to the procurement of lumber for these types of courses.

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[18] Stien, "Metrication a Construction Point of View," Building Research, January-March, 1974, p. 3-5.

CHAPTER III

METHODOLOGY

Procedure

In order to meet the research goals I have established in the section of this paper entitled Statement of the Problem, I have selected the leading United States producers of soft-wood dimensioned lumber, plywood, and related forest products to participate in this study. These leading producers of lumber, plywood, and related forest products were obtained from Standard and Poors' publication entitled Industry Surveys 1975.[1] As listed by Standard and Poors these major producers included Weyerhaeuser, Georgia-Pacific, Louisiana-Pacific, Champion International, Boise Cascade, Evans Products, Crown Zellerbach, International Paper, Potlatch Forest and Diamond International.

This research study intends to request from each company a projection by them and a description of any ideas they may have developed concerning metrication of dimensional lumber. In addition, this study will also ask for any information that each company may have published concerning

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[1] Standard and Poors, Industry Surveys 1975, p. B-87.

metrication of the lumber industry. The instrument that will be used to obtain these above requests is as follows:

Present Date, 1976

Dear Sir:

I am a graduate student at the University of Wisconsin-Stout at Menomonie, Wisconsin. Presently I am doing research in the area of metrication of the lumber industry. If you have any ideas developed or projections made as to how the lumber industry will transfer to metric sizes concerning the length, size, or dimensions of lumber, it would be greatly appreciated.

I would also desire any information that you may have published concerning the metric system as it pertains to your industry.

Please send your reply to: Peter J. Craemer, 320 Wilson Avenue, Menomonie, Wisconsin 54751. Again thanks.

Sincerely,

Peter J. Craemer

Unknowns

Since this research study requests current information from these selected companies it may be difficult for a study of this nature to remain current. Metrication in the United States is generally becoming more and more common as time moves on. A reader of this research should keep in mind the fact that metrication in the lumber industry itself is also constantly moving and changing. What information is current and valid for this study may not be in three, five, or possibly ten years from now. In order to remediate this difficulty this same research study could be again conducted in three or five years to check and confirm if these selected industries have in fact remained consistent with their plans and publications.

Data Analysis and Presentation

After receiving the specific information I requested from these leading lumber producing companies, I plan to first of all make an analysis of the data comparing the similarities and differences of their responses. An attempt will be made to establish consensus among the companies by finding the major similarities contained in each individual companies position and information that they may have published concerning metrication in the lumber industry. Due to the fact that specific information has been requested relating to dimensioned sizes of lumber in metrics the companies responses could possibly be shown by a table like the following.

Company Name	Definitive Metric Plan (yes or no)	Association with American National Metric Council (yes or no)
Weyerhaeuser	"	"
Georgia-Pacific	"	"
Boise-Cascade	"	"
Crown Zellerbach	"	"

Depending on the specific responses that this research study obtains, the above table could change in order to relate more specifically to each individual company's response.

The second analysis to be made concerns how the similarities and differences that will be obtained in the first analysis will specifically affect such selected Industrial Education courses as building construction, woodworking, and woodcrafts. This second analysis will also specifically relate to the procurement of lumber in metric dimensions in these types of courses.

The data received from this second analysis may be graphically displayed by a table similar to the following:

English Unit Sizes	New Metric Sizes
1 x 2"	__mm x __mm
2 x 4"	__mm x __mm
4 x 4"	__mm x __mm
2 x 6"	__mm x __mm
↓	↓
etc.	etc.

CHAPTER IV

ANALYSIS OF DATA

In the following chapter of this study two main findings will be discussed. First of all under section A of this chapter, an analysis of the general responses of the companies will be presented. Secondly, in section B a discussion of the companys' proposed metric conversion will be presented.

The following tables given in the rest of this study represents all ten of the major softwood dimension lumber producers that I requested information from. Although their responses varied in actual volume, the following trends that I discovered do represent the majority of those petitioned.

General Responses

When conducting the review of current literature for this research proposal it was discovered quite frequently that the lumber industry and the construction industry in general has been labeled as 'dragging its feet' in terms of metric conversion. Both Turner and Stein[1] in their studies

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[1] Turner, p. 6-8, Stein, p. 3-5.

refer to this lack of involvement on the part of the construction industry. When conducting my study I found that the lumber industry which is directly related to the construction industry, is involved in facilitating a changeover in the Metric System. On March of 1975 Lowry Wyatt, who is senior vice president of Weyerhaeuser Corporation, and also chairman of the American National Metric Council's (ANMC) Lumber and Wood Products Committee, stated that "while the wood industry is neither pro nor anti metric, we do expect the change to occur and we have organized for it in a pragmatic fashion.[2]

Table 1 represents the responses I received from the largest lumber producers in the Untied States as listed by Standards and Poors. These responses either involve a definite metric plan by them and/or an association with the American National Metric Council (ANMC) or the National Forest Products Association's (AFPA) plans for the metrication of the lumber industry.

Proposed Metric Conversion

Over the past few years prior to 1976, the lumber industry has been considering five different solutions to the problem of metric conversion. Table 2, which was obtained from the Boise Cascade Corporation, explains these five possible solutions.

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[2]Wyatt, Lowry, "Report to the American National Metric Council Coordinating Committee Panal", ANMC Convention, March 19, 1975,p.7.

Table 1

Companies General Responses

Company	Definitive Metric Plan	Association With ANMC/AFPA
Potlatch	Yes	Yes
Weyerhaeuser	Yes	Yes
Georgia-Pacific	Yes	Yes
Boise Cascade	Yes	--
International Paper	No Response	Yes
Louisiana-Pacific	Yes	Yes
Diamond International	Yes	--
Champion International	Yes	Yes
Crown Zellerbock	Yes	Yes
Evans Products	No	--

Table 2

Proposed Metric Conversions[3]

Nom. (In.)	SCHEDULE 1	SCHEDULE 2	SCHEDULE 3	SCHEDULE 4	SCHEDULE 5
2	1½" (38mm)	35mm (1.38")	35mm (1.38")	40mm (1.57")	38mm (1.5")
4	3½" (89mm)	90mm (3.54")	80mm (3.15")	90mm	86mm(3.39")
6	5½"(140mm)	140mm (5.51")	125mm (4.92")	140mm	133mm(5.24")
8	7¼"(184mm)	190mm (7.48")	170mm (6.69")	190mm	181mm(7.13")
10	9¼"(235mm)	240mm (9.45")	215mm (8.47")	240mm	228mm(8.98")
12	11¼"(286mm)	290mm(11.42")	260mm(10.24")	290mm	276mm(10.87")

Schedule 1 is a soft conversion of present sizes.

Schedule 2 represents one of the proposals made by those who advocate structural efficiency.

Schedule 3 offers remanufacturability without waste using 35mm as a base.

Schedule 4 shows nice rounded sizes that may be preferred by the consumer, and are remanufacturable by the cutting mill with minimum waste.

Schedule 5 offers remanufacturability without waste using 1½" thickness as a base. (Remanufacturability can be accomplished starting with any other base desired.)

The schedule of sizes shown are somewhat an over-simplification of the problem since they do not get into the nominal size versus actual size argument.

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[3]Retail Lumberman, Going Metric-Complexities and Issues Facing the Lumber Industry, June, 1975, p. 20.

From all the data that I received when conducting this study of softwood dimensional lumber, the general trend is towards a soft conversion process which is more indicative of Schedule 1 of Table 2. Lowry Wyatt, as chairman of the ANMC Lumber and Wood Products Sector Committee in a presentation given to the second annual conference of the ANMC in April of 1976 stated:

> "there now appears to be a general consensus among the many interested parties that softwood lumber metric sizes should be a soft conversion of present standard lumber sizes. And, while there are those who might prefer a hard conversion of lumber dimensions, it is important to note that the sizes selected are technically appropriate for modular construction based on the 100mm module. This provides for 300, 400, 600 and 1200mm spacing where even metric units appear to be more important in design than the actual dimensions of the members themselves."[4]

From this discussion by Lowry Wyatt one can see that the general trend among the softwood dimensional lumber producers is towards a soft conversion. From all the information I received in response to my letter of inquiry, the companies in general all favor this trend toward soft conversion. When reviewing Table 3 and 4 note that in the column entitled Metric or Metric Dry, that the millimetre figure represents this soft conversion process of current dimensional sizes. This soft conversion column basically means that the present English unit sizes are directly converted to millimetres with little or no

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[4]Wyatt, Lowry, "Report to the American National Metric Council Second Annual Conference," ANMC Convention, April 6, 1976, p. 2.

Table 3

Soft Conversion Sizes of Boards, Dimension, and Timbers[5]

	Thicknesses					Widths				
	Nominal"	Net" Dry	Net" Green	Metric, mm Dry	Metric, mm Green	Nominal"	Net" Dry	Net" Green	Metric, mm Dry	Metric, mm Green
Boards	3/4	5/8	11/16	16	17	2	1-1/2	1-9/16	38	39
	1	3/4	25/32	19	20	3	2-1/2	2-9/16	64	66
	1-1/4	1	1-1/32	25	26	4	3-1/2	3-9/16	89	91
	1-1/2	1-1/4	1-9/32	32	33	5	4-1/2	4-5/8	114	117
						6	5-1/2	5-5/8	139	143
						7	6-1/2	6-5/8	165	170
						8	7-1/4	7-1/2	185	190
						9	8-1/4	8-1/2	210	216
						10	9-1/4	9-1/2	235	242
						11	10-1/4	10-1/2	260	267
						12	11-1/4	11-1/2	285	293
						14	13-1/4	13-1/2	335	345
						16	15-1/4	15-1/2	385	395
Dimen-	2	1-1/2	1-9/16	38	39	2	1-1/2	1-9/16	38	39
sion	2-1/2	2	2-1/16	51	52	3	2-1/2	2-9/16	64	66
	3	2-1/2	2-9/16	64	66	4	3-1/2	3-9/16	89	91
	3-1/2	3	3-1/16	76	78	5	4-1/2	4-5/8	114	117
	4	3-1/2	3-9/16	89	91	6	5/1/2	5-5/8	139	143
	4-1/2	4	4-1/16	102	104	8	7-1/4	7-1/2	185	190
						10	9-1/4	9-1/2	235	242
						12	11-1/4	11-1/2	285	293
						14	13-1/4	13-1/2	335	345
						16	15-1/4	15-1/2	385	395
Timbers	5-16	Same as Green Dimension				5-16	Same as Green Dimension			
	18	17-1/2		445		18	17-1/2		445	
	20	19-1/2		495		20	19-1/2		495	
	22	21-1/2		545		22	21-1/2		545	
	24	23-1/2		595		24	23-1/2		595	

[5] General Records of the American National Metric Council, August, 1975.

Table 4

Soft Conversion of Finish[6]

	Thicknesses			Face Widths		
	Nominal"	Net"	Metric, mm	Nominal"	Net"	Metric, mm
Finish	3/8	5/16	8	2	1-1/2	38
	1/2	7/16	11	3	2-1/2	64
	5/8	9/16	14	4	3-1/2	89
	3/4	5/8	16	5	4-1/2	114
	1	3/4	19	6	5-1/2	139
	1-1/4	1	25	7	6-1/2	165
	1-1/2	1-/4	32	8	7-1/4	185
	1-3/4	1-3/8	35	9	8-1/4	210
	2	1-1/2	38	10	9-1/4	235
	2-1/2	2	51	11	10-1/4	260
	3	2-1/2	64	12	11-1/4	285
	3-1/2	3	76	14	13-1/4	335
	4	3-1/2	89	16	15-1/4	385

[6]General Records of the American National Metric Council, August, 1975.

change outside of those tolerances presently allowed for the English units. Also note that Tables 3 and 4 contains the recommendations of the ANMC in terms of how the soft conversion of the lumber industry is progressing in reference to thickness and face widths.

In terms of the new metric lengths for softwood lumber it has been generally accepted that a soft conversion would be the best for all concerned. The industry is generally favoring 1.8 m as the shortest length. The major module of increasing length wuld be 0.6 m, a minor module of 0.3 m would also be available. Table 5 shows how this system will work.

Table 5

Metric Lengths[7]

Feet	Equivalent Meters	Recommended Lengths	Equivalent Feet
6	1.83	1.8 m	5'11"
8	2.44	2.4 m	7'10"
10	3.05	3.0 m	9'10"
12	3.66	3.6 m	11'10"
14	4.27	4.2 m	13'9"
16	4.88	4.8 m	15'9"
18	5.49	5.4 m	17'9"
20	6.10	6.0 m	19'8"

[7]General Records of the Activities of the Special Committee on Metric Conversion of Lumber, Western Wood Products Association, May, 1975, p. 3.

It is important here to take note that of all the metric conversions that are currently taking place in the softwood dimension lumber industry the length conversion does seem to be the most confusing. When converting this measurement both hard and soft conversion processes were used. This fact can be seen in Table 5 especially when observing that in the longer lengths (14 feet through 20 feet) up to 3 inch differences in conversion have been allowed in respect to former English units.

In summary the lumber industry generally favors a soft conversion directly from present inch sizes involving thicknesses, face width and lengths. The reasoning behind this trend to soft conversion has many issues such as product waste considerations, strength of materials, consumer demand and most importantly the preservation of current lumber dimensions standards as adopted in 1970. It should be noted here that one of the reasons why an adhering as closely as possible to the current lumber dimensions is desired, is that no one in the industries themselves wish to begin a repeat of the ten year bitter struggle which finally became the current compromised lumber standard in 1970.[8]

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[8]Retail Lumberman, "Going Metric - Complexities and Issues Facing the Lumber Industry", June, 1975, p. 19.

CHAPTER V

RELEVANCY FOR INDUSTRIAL EDUCATION

As presented in Chapter IV of this study, the general trend in the softwood dimension lumber industry is towards a soft metric conversion. This soft conversion means a direct conversion of present English units to metric ones. As presented earlier in this study in Tables 3 and 4, this type of conversion only allows for the direct converting of the present set of lumber dimension standards that were adopted in 1970.

From this soft conversion trend in industry, the instructor of Industrial Education can expect the current sizes of softwood dimension lumber to convert directly to metric equivalents. In fact little change in softwood dimension lumber sizes will occur in conversion that would be noticeable when handled or visually inspected. For example, referring back to Table 3 under the column entitled 'thicknesses', a dry 5/8" board when cut in the new metric size will measure 16 mm, an almost exact conversion. This is also true for most all of the thickness and width measurements contained in the rest of Table 3. Only upon using a metric caliper or some other more refined measuring device could an individual see exactly if any variance in tolerance was discernible. Even

upon this close of an examination of various softwood dimension lumber sizes, less than 0.5 mm is lost in most conversions (note: some larger sizes allow for up to 2 mm being the maximum). For the instructor of Industrial Education this close of a conversion may prove to be very promising.

In Industrial Education softwood dimension lumber is prominently used in building construction type courses. As with many courses in Industrial Education, the instructor himself does much of the ordering and procurement of materials. What must an instructor look for when ordering softwood dimension lumber in the future? What information would an instructor need?

It is my projection based on the facts presented in the preceding chapters that Table 6 concerning thicknesses and widths and Table 7 concerning the lengths of softwood dimension lumber will be extremely useful when handling or procuring this type of material.

The following tables generally refer to building construction type courses only. In Industrial Education other courses such as woodworking, woodcrafts, cabinet making, and furniture construction also make use of some softwood dimensioned lumber, but to a lesser degree than building construction. These types of courses generally use more hardwood board than softwood dimensioned lumber when compared with a building construction course. Although this study was involved only in softwood dimensioned lumber some relevant information

Table 6

English and Metric Softwood Dimension Lumber Width and Thicknesses
Including Nominal and Net Sizes

Thickness		Width											
		1	2	3	4	5	6	7	8	9	10	11	12
Nom.	NOM. Net	(3/4)	(1½)	(2½)	(3½)	(4½)	(5½)	(6½)	(7½)	(8½)	(9½)	(10½)	(11½)
3/8	(5/16)	8/19*	8/38	8/64	8/89	8/114	8/139	8/165	8/185	8/210	8/235	8/260	8/285
1/2	(7/16)	11/19	11/38	11/64	11/89	11/114	11/139	11/165	11/185	11/210	11/235	11/260	11/285
5/8	(9/16)	14/19	14/38	14/64	14/89	14/114	14/139	14/165	14/185	14/210	14/235	14/260	14/285
3/4	(5/8)	16/19	16/38	16/64	16/89	16/114	16/139	16/165	16/185	16/210	16/235	16/260	16/285
1	(3/4)	19/19	19/38	19/64	19/89	19/114	19/139	19/165	19/185	19/210	19/235	19/260	19/285
1¼	(1)	25/19	25/38	25/64	25/89	25/114	25/139	25/165	25/185	25/210	25/235	25/260	25/285
1½	(1 1/4)	32/19	32/38	32/64	32/89	32/114	32/139	32/165	32/185	32/210	32/235	32/260	32/285
1 3/4	(1 3/8)	35/19	35/38	35/64	35/89	35/114	35/139	35/165	35/185	35/210	35/235	35/260	35/285
2	(1 1/2)	38/19	38/38	38/64	38/89	38/114	38/139	38/165	38/185	38/210	38/235	38/260	38/285
2½	(2)	51/19	51/38	51/64	51/89	51/114	51/139	51/165	51/185	51/210	51/235	51/260	51/285
3	(2 1/2)	64/19	64/38	64/64	64/89	64/114	64/139	64/165	64/185	64/210	64/235	64/260	64/285
3½	(3)	76/19	76/38	76/64	76/89	76/114	76/139	76/165	76/185	76/210	76/235	76/260	76/285
4	(3 1/2)	89/19	89/38	89/64	89/89	89/114	89/139	89/165	89/185	89/210	89/235	89/260	89/285
4½	(4)	102/19	102/38	102/64	102/89	102/114	102/139	102/165	102/185	102/210	102/235	102/260	102/285
5	(4 1/2)	114/19	114/38	114/64	114/89	114/114	114/139	114/165	114/185	114/210	114/235	114/260	114/285
6	(5 1/2)	139/19	139/38	139/64	139/89	139/114	139/139	139/165	139/185	139/210	139/235	139/260	139/285
8	(7 1/4)	185/19	185/38	185/64	185/89	185/114	185/139	185/165	185/185	185/210	185/235	185/260	185/285

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Table 6 (Continued)

Thickness		Width											
		1	2	3	4	5	6	7	8	9	10	11	12
Nom.	NOM. Net	(3/4)	(1½)	(2½)	(3½)	(4½)	(5½)	(6½)	(7½)	(8½)	(9½)	(10½)	(11½)
10	(9 1/4)	235/19	235/38	235/64	235/89	235/114	235/139	235/165	235/185	235/210	235/235	235/260	235/285
11	(11 1/4)	285/19	285/38	285/64	285/89	285/114	285/139	285/165	285/185	285/210	285/235	285/260	285/285

*Note: These figures represent the actual millimetre net. If nominal sizes are desired, use the nominal heading figures as guides.

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Table 7

English and Metric Softwood Dimension Lumber Lengths

English Unit (feet)	Metric Unit (metres)
6	1.8*
7	2.1
8	2.4
9	2.7
10	3.0
11	3.3
12	3.6
14	4.2
16	4.8
18	5.4
20	6.0
22	6.6
24	7.2
26	7.8
28	8.4
30	9.4

*Note: These new metric lengths are not necessarily exact conversions of current English units but are based on the 0.3 m module.

pertaining to the metric conversion of other wood products including hardwood board lumber was also obtained. This information is included in the appendix to this study under the various topic areas.

An interesting study relating to hardwood board lumber could be conducted in the future, as this study was for softwood dimension lumber, by any interested individual. Either by using the same format that was contained in this study or a different one, much relevant and interesting information could be obtained for people both in education and industry.

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APPENDIX A

Hardwood Board Lumber

Hardwood Board Lumber [1]

Nominal Inches	Net Inches	Recommended mm
4/4	35/32	20
5/4	1-5/32	29
6/4	1-13/32	36
7/4	1-19/32	40
8/4	1-13/16	46
9/4	2-3/32	53
10/4	2-3/8	60
11/4	2-9/16	65
12/4	2-3/4	70
16/4	3-3/4	95

[1] General Records of the American National Metric Councils Lumber and Products Sector Committee.

APPENDIX B

Other Softwood Dimension Lumber Sizes

Other Softwood Dimension Lumber Sizes[2]

Sizes of worked lumber such as factory flooring, heaving roofing, decking, and sheet piling.

Item	Thicknesses					Face Widths				
	Nominal"	Net" Dry	Net" Green	Metric, mm Dry	Metric, mm Green	Nominal"	Net" Dry	Net" Green	Metric, mm Dry	Metric, mm Green
Tongue & Grooved	2-1/2	2	2-1/16	51	52	4	3	3-1/16	76	78
	3	2-1/2	2-9/16	64	66	6	5	5-1/8	126	130
	3-1/2	3	3-1/16	76	78	8	6-3/4	7	172	177
	4	3-1/2	3-9/16	89	91	10	8-3/4	9	222	229
	4-1/2	4	4-1/16	102	104	12	10-3/4	11	272	280
Shiplap	2-1/2	2	2-1/16	51	52	4	3	3-1/16	76	78
	3	2-1/2	2-9/16	64	66	6	5	5-1/8	126	130
	3-1/2	3	3-1/16	76	78	8	6-3/4	7	172	177
	4	3-1/2	3-9/16	89	91	10	8-3/4	9	222	229
	4-1/2	4	4-1/16	102	104	12	10-3/4	11	272	280
Grooved for Splines	2-1/2	2	2-1/16	51	52	4	3-1/2	3-9/16	89	91
	3	2-1/2	2-9/16	64	66	6	5-1/2	5-5/8	139	143
	3-1/2	3	3-1/16	76	78	8	7-1/4	7-1/2	185	190
	4	3-1/2	3-9/16	89	91	10	9-1/4	9-1/2	235	242
	4-1/2	4	4-1/16	102	104	12	11-1/4	11-1/2	285	293

[2] General Records of the American National Metric Councils Lumber and Wood Products Sector Committee.

Sizes of 2-inch and under shiplap, centermatch, and D&M[3]

Item	Thicknesses					Face Widths				
	Nominal"	Net"		Metric, mm		Nominal"	Net"		Metric,mm	
		Dry	Green	Dry	Green		Dry	Green	Dry	Green
Shiplap	1	3/4	25/32	19	20	4	3-1/8	3-3/16	79	81
						6	5-1/8	5-1/4	129	133
						8	6-7/8	7-1/8	175	180
						10	8-7/9	9-1/8	225	232
						12	10-7/8	11-1/8	275	283
						14	12-7/8	13-1/8	325	335
						16	14-7/8	15-1/8	375	385
Shiplap 1/2" lap	1	3/4	25/32	19	20	4	3	3-1/16	76	78
						6	5	5-1/8	126	130
						8	6-3/4	7	172	177
						10	8-3/4	9	222	229
						12	10-3/4	11	272	280
						14	12-3/4	13	322	332
						16	14-3/4	15	372	382
Center-	1	3/4	25/32	19	20	4	3-1/8	3-3/16	79	81
match	1-1/4	1	1-1/32	25	26	5	4-1/8	4-1/4	104	107
1/4"	1-1/2	1-1/4	1-9/32	32	33	6	5-1/8	5-1/4	129	133
tongue						9	6-7/8	7-1/8	175	180
						10	8-7/8	9-1/8	225	232
						12	10-7/8	11-1/8	275	283
2" D&M 3/8" tongue	2	1-1/2	1-9/16	38	39	4	3	3-1/16	76	78
						6	5	5-1/8	126	130
						8	6-3/4	7	172	177
						10	8-3/4	9	222	229
						12	10-3/4	11	272	280
2" Shiplap 1/2" lap	2	1-1/2	1-9/16	38	39	4	3	3-1/16	76	78
						6	5	-1/8	126	130
						8	6-3/4	7	172	177
						10	8-3/4	9	222	229
						12	10-3/4	11	272	280

[3]General Records of the American National Metric Councils Lumber and Wood Products Sector Committee.

Dry sizes of siding at 19 percent maximum - moisture content.[4]

Item	Thicknesses			Face Widths		
	Nominal"	Net"	Metric, mm	Nominal"	Net"	Metric, mm
Bevel	1/2	7/16*	11	4	3-1/2	89
	9/16	15/32	12	5	4-1/2	114
	5/8	9/16	14	6	5-1/2	139
	3/4	11/16	17	8	7-1/4	185
	1	3/4	19	10	9-1/4	235
				12	11-1/4	285
Bungalow Siding	3/4	11/16*	17	8	7-1/4	185
				10	9-1/4	235
				12	11-1/4	285
Rustic & Drop Siding 3/8" Lap	5/8	9/16	14	4	3	76
	1	23/32	18	5	4	101
				6	5	126
Rustic & Drop Siding 1/2" Lap	5/8	9/16	14	4	2-7/8	73
	1	23/32	18	5	3-7/8	98
				6	4-7/8	123
				8	6-5/8	169
				10	8-5/8	219
				12	10-5/8	269
Rustic & Drop Siding Dressed & Matched	5/8	9/16	14	4	3-1/8	79
	1	23/32	18	5	4-1/8	104
				6	5-1/8	129
				8	6-7/8	175
				10	8-7/8	225

*Butt thicknesses are shown. Tip thickness for all thicknesses and widths of Bevel and Bungalow Siding are Net - 3/16", Metric - 5 mm.

[4]General Records of the American National Metric Councils Lumber and Products Sector Committee.

APPENDIX C

Panel Sizes (Plywood and Paneling)

METRICATION STATUS REPORT

CONSTRUCTION AND INDUSTRIAL PLYWOOD

General

The industry has not been polled as to the preferred standard metric dimensions for overall panel sizes nor for panel thicknesses. Preliminary suggested approaches are being explored by industry and the American Plywood Association.

A Technical Advisory Committee recommended that Canada and the United States develop a common approach to metric conversion. Continuing liaison with the Canadian Council of Forest Industries (COFI) has been established to review developments in both countries and to compare suggested standards, policies, and possible coordination of the timing of the metric changeover.

1200 mm x 2400 mm Panel Size

A Panel Products Task Group consisting of all wood-based panel products as well as a representative of the gypsum and asbestos panel industries met in May of 1974. A uniform system of modular planning was considered based on the 100 mm module. Agreement was reached on the 100 mm building module and on a recommendation that the 1200 x 2400 mm panel size would be a workable replacement for the standard 4' x 8' panel.

The 1200 x 2400 mm panel size is the generally accepted plywood dimension for most other countries that have converted or are planning to convert to metric sizes.

This size and the resultant spacings are reasonably close to present usage to have panel products accepted by regulatory agencies and the construction industry.

Existing plywood manufacturing equipment is compatible with this suggested panel size.

Thickness

Softwood plywood panel thicknesses may be the most critical problem to solve of all panel products.

Thickness of plywood must be related to standard thicknesses of veneer and must also be developed to satisfy structural

requirements for conventional loading practices over the anticipated on center support of 300, 400, and 600 mm.

It is felt that we must establish metric panel thicknesses that provide the necessary working end use characteristics. Once the panel thicknesses and tolerances are established, the industry will adjust to the manufacture of these specifications in much the same way it has done under the current customary measurements

Preliminary investigation of metric standardization of veneer thicknesses indicated that, because of variables of species, panel constructions, tolerances, compression loss, etc., standardization of veneer thicknesses may not be practical.

No major problems are expected by lathe manufacturers in converting from a veneer peel gauge based on increments of thousandths of an inch to tenths or hundredths of a millmeter.

Metrication may offer the manufacturing segment of the plywood industry the opportunity to produce sanded thicknesses from the same constructions that are used for unsanded panels. Standard unsanded lay-ups for all production wether sanded or not may result in the reduction of veneer thickness required.

Sanded and touch-sanded standard panel thicknesses may be 1 mm less than standard unsanded thicknesses. The 1 mm is considered an adequate allowance for the reduction of thickness due to sanding in most "good one side" panels.

Panel thickness tolerances are also being examined. Most manufacturers aim for the minimum end of a tolerance specification. This conserves wood which results in higher veneer recovery and improves overall mill efficiency.

Though no final decisions have been made, suggested proposed metric thickness sizes and tolerances for Unsanded, Sanded and Touch-Sanded panels are presented in the attached tables. Comparisons with customary thicknesses and ratios of properties based on proposed metric thicknesses to present thicknesses are also shown.

Since the industry has not been polled, these tables are purely tentative and are intended as a discussion catalyst for the industry. More definitive information will be available after the industry is surveyed.

PROPOSED METRIC THICKNESSES FOR PLYWOOD

Proposed Metric	English Equivalent	Proposed Tolerance (-0.2mm + 1.0mm)	Corresponding Present Thickness (inch)	Ratios of Properties Based on Proposed Metric Thicknesses to Present Thicknesses*	
				I metric / I PS 1	KS metric / KS PS 1
7	0.276	0.268 0.315	5/16"	0.80	0.88
9	0.354	0.346 0.393	3/8"	0.96	0.97
12	0.473	0.465 0.512	1/2"	0.93	0.96
15	0.590	0.582 0.629	5/8"	0.96	0.94
18	0.709	0.701 0.629	3/4"	0.90	1.04
20	0.788	0.780 0.827	3/4"	1.16	1.21

*Ratio takes into account slightly reduced span for metric panels, e.g., 24" corresponds to 600 mm (23.62").

These calculations are based on veneer thicknesses approximating those in the present PS 1. Stiffness and strength of panels with Identification Indexes of 12/0, 16/0 and 20/0 are significantly less than at the present time. These panels (5/16" and 3/8" - weaker than 3/8" Group 1) generally are not used where they support gravity loads. Therefore, this reduction is probably not significant.

B. Sanded and Touch-Sanded Plywood

Touch-sanded panels and sanded grades having one solid face (A-C, A-D, etc.) are primarily sanded on only one face. The back sanding (if any) may be only a few thousandths. Therefore, the 1 mm allowance for sanding (0.039"), combined with the thickness tolerances, should be adequate.

In the table that follows, the sanded panels ("S") are assumed to have 0.030" sanded from the face and 0.010" from the back. The touch-sanded panels ("TS") have 0.030" sanded from the face and none from the back.

Proposed Metric	English Equivalent	Proposed Tolerance (-0.2mm + 0.6mm)	Corresponding Present Thickness (inch)	Ratios of Proposed Metric Thicknesses to Present Thicknesses*	
				I metric / I PS 1	KS metric / KS PS 1
		0.228			
6	0.236	0.259	1/4" S	0.97	0.95
		0.307			
8	0.315	0.338	3/8" S	0.71	0.78
		0.425			
11	0.433	0.456	1/2" S	0.79	0.86
		0.543			
14	0.551	0.574	1/2" TS	1.35	1.23
		0.661			
17	0.669	0.692	19/32" TS	1.42	1.23
		0.740			
19	0.748	0.771	23/32" TS	1.20	1.11

*Ratio takes into account slightly reduced spans for metric panels, e.g., 24" corresponds to 600 mm (23.62").

The increase in strength and stiffness properties for the 14, 17, and 19 mm panels relative to 1/2", 5/8" and 3/4" panels would appear to be desirable. Since 5/8" or 19/32" underlayment is commonly used over floor joists spaced 16" o.c., use of the 14 mm panel would actually represent a slight reduction in plywood thickness.

C. Panels fully sanded on two sides

The 1 mm allowance for sanded will not allow for full sanding both panel faces. These panels may need to be laid up 1.5 or 2 mm thicker than final thickness. However, B-B and B-B Concrete represent the bulk of the two-side panels and the 1 mm allowance may be adequate for those grades.[5]

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[5]Brown, Dan. "Metrication Status Report Construction and Industrial Plywood", Technical Services Division, American Plywood Association.

APPENDIX D

Truss Lumber

TRUSS PLATE INSTITUTE

TPI NEWS

7100 BALTIMORE AVENUE, COLLEGE PARK, MARYLAND 20740
ROBERT W. SPANGLER, MANAGING DIRECTOR • 301/699-5260

July 24, 1975

WELCOME NEW MEMBERS. A hearty welcome is offered to the following new fabricator members:

Engineered Homes Inc.
East Falmouth, Massachusetts

Carolina Development Company
Chapel Hill, North Carolina

METRIC LUMBER SIZES. We have previously reported that the lumber industry was proposing a 35 mm thickness for lumber when the change is made to the metric system of measurement, as opposed to the current thickness of 38.1 mm (1.5 in.). There has been consideration of several different widths as well as varying thicknesses by the lumber industry. At this time the lumber industry is proposing a soft conversion plus an equivalent 2x5 size. The current proposal is as shown in the following table:

Nominal Size (in.)	Metric Size (mm)	Nominal Size (in.)	Metric Size (mm)
2x4	38x 89	2x10	38x235
2x5	38x114	2x12	38x285
2x6	38x139	2x14	38x335
2x8	38x185	2x16	38x385

TPI has just completed a position paper on metrication. A copy is attached.

CMC OPERATING PROCEDURES. The Steering Committee appointed to guide the development of the Component Manufacturers Council (CMC) has considered many matters. Among them are Operating Procedures for CMC. A copy of the Operating Procedures that have been adopted by the CMC Steering Committee is attached. Section 8 makes it possible for existing and new local organizations to affiliate with CMC as Allied Organizations. It is intended that both the local organizations and CMC can cooperate with one another while each retains its autonomy.

TRUSS PLATE INSTITUTE

TPI NEWS

7100 BALTIMORE AVENUE, COLLEGE PARK, MARYLAND 20740
ROBERT W. SCHANGLER, MANAGING DIRECTOR • 301/699-5280

POSITION PAPER ON METRICATION

The Truss Plate Institute favors the change to the metric system of measurement for the United States because of the advantages that would accrue. In addition to having a system of decimal measurement and sizes of products that would be compapable to other nations, the change offers the opportunity to:

1. Develop an intermediate size of lumber equivalent to a 2x5 (1.5" x 4.5" or about 38 mm x 114 mm).
2. Eliminate the use of nominal sizes in describing products. The use of actual sizes in communication would minimize the confusion and misunderstanding between manufacturers and users.
3. Develop a simplified grading system for lumber. A simplified system would offer obvious benefits to users as well as manufacturers.

Wood structural component manufacturers now use well in excess of five billion board feet of lumber annually. Of greatest concern to this user industry is the proposed reduction in stress-grade lumber thickness from 1.5 inches (38.1 mm) to 1.38 inches (35 mm). While a reduced thickness may offer some advantages for lumber used in conventional construction, it is believed that the adverse effects on wood structural components far exceed those advantages.

Because there is a decreasing availability of the larger widths of lumber and an increase in the use of wood structural components, the following effects of a reduced thickness for lumber should receive serious consideration.

1. The resistance to buckling will be decreased which will result in shorter effective buckling lengths and increased bracing requirements.
2. There will be a reduced edge-area in which to apply metal connector plates in floor trusses which use the lumber turned flatwise.
3. The moment of inertia and section modulus will be reduced for lumber used in trusses.
4. There will be a reduced edge-area for attaching gypsum and plywood panel products.
5. Resistance to splitting will be decreased.
6. Nail and bolt values will be reduced.
7. The area available for bearing will be reduced.
8. Resistance to fire penetration will be reduced.
9. Laminated products will require an added glue line.
10. The effect of such characteristics as knots will result in grade loss.
11. Wood structural components would be more flexible so that handling and erection could pose problems.

Obviously these effects will increase costs whereas retaining the present thickness or increasing it slightly will prevent the adverse effects or improve the product in these respects.

The relatively recent introduction of flat trusses, with lumber turned flatwise, into the light commercial and industrial building market has met with considerable success. By retaining at least the present thickness of stress-grade lumber or even increasing the thickness slightly would substantially enhance the penetration of these markets which have heretofore been relatively untouched by the wood structural component industry.

APPENDIX E

Treated Poles

awpi
american wood preservers institute
1651 OLD MEADOW ROAD • McLEAN, VIRGINIA 22101 • TELEPHONE 703 893-4005

May 4, 1976

To: Lowry Wyatt, Chairman
ANMC Lumber and Wood Products
Sector Committee

Sub: Interim Report of Subsector Committee on
Poles, Piling, Cross Ties and Treated Wood

From: Shirley B. Braselman, Chairman

This subsector committee met for a brief time on Tuesday, April 27 in Atlanta, Georgia. Most committee members were present and included representatives of the treating industry from the United States and Canada, railroads, public utilities, academia and preservative suppliers.

Current recommendations to the ANMC Lumber and Wood Products Sector Committee include the following:

1. That the spelling of "metre" and "litre" be adopted as utilized by ASTM and Canada.

2. That the diameter and circumference of round stock (wood poles, piles, posts, etc.) be expressed in centimetres (cm), and the lengths for these wood products be expressed in metres (m).

3. That the thickness and width of cross ties be expressed in millimetres (mm) and the lengths be expressed in metres (m). It was indicated that the railroads in both Canada and the United States will probably make the final decision on exact dimensions. They have indicated that they would prefer nothing smaller or shorter than the present sizes and lengths.

4. No other recommendations on the October 15, 1975 draft of "Preferred Metric Units for Lumber and Wood Products" would be offered at this time.

5. That, unless the National Bureau of Standards has made any firm recommendation on an expression for vacuum measurement, that this measurement be expressed in terms of millimetres (mm) of mercury.

6. These recommendations parallel (but are not identical to) those presented in the draft paper of July 29, 1975 prepared for consideration by Canadian Metric Commission Sector Committee 8.2 entitled, "Metric Units for the Measurement and Engineering of Wood Products" by D. E. Kennedy, Metric Conversion Program, Forest Management Institute, Canadian Forestry Service.

7. It is further recommended that the United States Wood Products industry (particularly the pressure treated sector) should conform to the metric conversion schedule established by Canada and that it should be completed by December 31, 1979.

The new chairman of this committee is C. L. Stoddard, Vice President, L. D. McFarland Company, P.O. Box 670, Sandpoint, Idaho 83864.

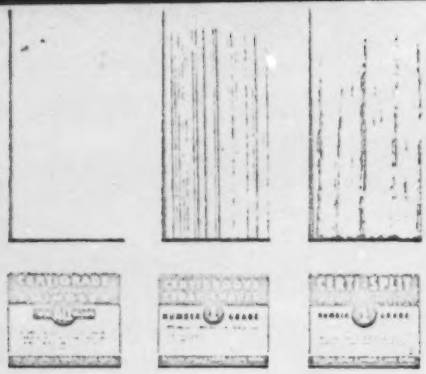
The next scheduled meeting for this subsector committee is during the week of September 19 - 25, 1976 in San Diego, California.

Shirley B. Braselman, President

Report transmitted by
Loren F. Dorman
President, AWPI

APPENDIX F

Cedar Shakes, Shingles, and Applications



RED CEDAR SHINGLE & HANDSPLIT SHAKE BUREAU
5510 White Building Seattle, Washington 98101 (206) 623-4881

January 6, 1976

R. A. Hewett
National Forest Products Association
Forest Industries Building
1619 Massachusetts Avenue, N.W.
Washington, D.C. 20036

Dear Bob:

Happy New Year!

This is to keep you abreast of our fledgling metric committee which held its initial meeting last month.

The committee favored the use of millimeters re shingle and shake length and thickness. It also was of the opinion that shingles and shake coverage should be stated in terms of square meters.

The committee further requested that our field representatives conduct a survey of suppliers and roofing contractors to get a feeling on a preference for the marketing of shingles and shakes by the square, as at present, or what at least appears to be the more simple metric approach by the bundle. A square consists of varying numbers of bundles depending upon type of product and end use - roof versus wall.

We will keep you informed of survey results when it is completed and also the action of subsequent committee meetings.

The extent of your work to date on metric is amazing and we appreciate it.

Yours very truly,

RED CEDAR SHINGLE & HANDSPLIT SHAKE BUREAU

Marshall R. Ritchie
Marketing Manager

MRR:dw